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HEWLETT-PACKARD COMPANY  
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EXAMINER
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EHICHIOYA, FRED I

ART UNIT	PAPER NUMBER
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2172

DATE MAILED: 01/09/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

PR4

**Office Action Summary**

Application No.

09/846,069

Applicant(s)

SUERMONDT ET AL.

Examiner

Fred I. Ehichioya

Art Unit

2172

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 October 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

1. Response to arguments filed October 08, 2003
2. Claims 1 – 35 are pending in this office action.
3. Applicants argue:

(a) "Taken as a whole, Johnson appears to disclose using training data to form a decision tree from which a simplified . . . or categorizing the item categorizer system in the plurality of categories based on the respective plurality of levels of goodness . . ."  
(Page 2, Para 4 through page 3, Para 3).

(b) "a prima facie case of obviousness has not been established" (Page 25, Para 3 through Page 26, Para 2).

Regarding the argument (a): Taken as a whole the applicants agree with the examiner that John appears to disclose categorization to automatically categorize messages or documents among others. Examiner thanks applicants for acknowledging that the interpretation of the claim language presented in the last Office Action is somewhat correct. Examiner believes that entire interpretation is appropriate.

However, examiner disagrees with the applicants that Johnson does not disclose: providing . . . based on the respective plurality of levels of goodness ..." (Page 2, Para 4 - Page 3, Para 1).

*Test for combining references is not what individual references themselves suggest but rather what the combination of disclosures taken as a whole would*

*suggest to one of ordinary skill in the art. In re McLaughlin, 170 USPQ 209 (CCPA 1971).*

Taken as a whole Johnson discloses providing a plurality of categories organized in a hierarchy of categories (see column 3, lines 24 - 28); providing a plurality of categorizers corresponding to the plurality of categories (see column 6, lines 2 – 3 and column 18, line 30); featurizing the item to create a list of item features (see column 4, lines 41 – 43); using the list of item features in a categorizer system including the plurality of categorizers for determining a plurality of levels of goodness (see column 6, lines 1 – 16 and lines 63 – 67; Johnson discloses “confidence level” as “levels of goodness”); using one of the plurality of levels of goodness for invoking an additional categorizer of the plurality of categorizers as required (see column 2, line 57 through column 3, line 10; Johnson discloses “confidence level” as “levels of goodness”); categorizing the item in the categorizer system in the plurality of categories based on the respective plurality of levels of goodness (see column 17, line 59 through column 18, line 5; Johnson discloses “confidence level” as “levels of goodness”); and returning the item categorized (see column 18, lines 15 – 21).

Regarding argument (b): *a prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art. Once such a case is established, it is incumbent upon appellant to go forward with objective evidence of unobviousness. In re Fielder, 471 F.2d 640, 176 USPQ 300 (CCPA 1973).*

*In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).*

Therefore, it would have been obvious to one of ordinary skill in the art that the combination of the teaching of Agrawal with the teaching of Johnson wherein modifying "high goodness score" (Agrawal column 11, line 67) induces rules from training data, and the generated rules can then be used to categorize data that is similar to the training data. These are the categorizers. As disclosed in column 6, line 55, Johnson "supports multiple categorization".

4. Applicant's arguments filed October 08, 2003 have been fully considered but they are not persuasive. Therefore, Office Action on paper No. 2 is proper.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3 – 10, 12 – 21, 23, 25 - 35 are rejected under 35 U.S.C 102(e) as been anticipated by U.S. Patent 6,519,580 issued to David E. Johnson et al (hereinafter "Johnson").

Regarding claim 1, Johnson teaches a method categorization of an item comprising:

providing a plurality of categories organized in a hierarchy of categories (see column 4, lines 62 - 65);

providing a plurality of categorizers corresponding to the plurality of categories (see column 2, lines 39 – 40);

featurizing the item to create a list of item features (see column 4, lines 41 – 45);

using the list of item features in a categorizer system including the plurality of categorizers for determining a plurality of levels of goodness (see column 6, lines 1 – 16);

using one of the plurality of levels of goodness for invoking an additional categorizer of the plurality of categorizers as required (see column 14, lines 24 - 65);

categorizing the item in the categorizer system in the plurality of categories based on

the respective plurality of levels of goodness (see column 17, lines 59 – 67); and  
returning the item categorized (see column 18, lines 15 – 21).

Regarding claim 3, Johnson teaches using a categorizer system knowledge base for determining the level of goodness for a category with the list of item features(see column 6, lines 51 – 65).

Regarding claim 4, Johnson teaches listing the plurality of categories and the respective levels of goodness on a list; and categorizing from the list (see column 6, lines 63 – 67).

Regarding claim 5, Johnson teaches returning one category for the item among the plurality of categories selected from a group consisting of the one category with the best level of goodness for all the plurality of categories and with the best level of goodness for which determining is completed where all of the plurality of categories are not compared (see column 18, lines 15 – 21).

Regarding claim 6, Johnson teaches returning a plurality of categories for the item among the plurality of categories returns a plurality of categories selected from a group consisting of categories up to a fixed number of the plurality of categories, categories having more than a fixed level of goodness, categories fulfilling a user specified preference, categories not from a categorizer, and categories which are a combination thereof (see column 18, lines 15 – 21).

Regarding claim 7, Johnson teaches returning the category for a plurality of items establishes a categorizer system knowledge base for a topic hierarchy (see column 18, lines 15 – 21).

Regarding claim 8, Johnson teaches listing a plurality of labels for each of the plurality of categories (see column 1, lines 24 – 27); and

training a categorizer system trainer using a plurality of items having known categories and the plurality of labels to provide a categorizer system knowledge base (see column 6, lines 39 – 42).

Regarding claim 9, Johnson teaches providing a categorizer system knowledge base (see column 2, lines 39 – 40);

using a plurality of items with known categories to learn knowledge in the categorizer system knowledge base (see column 1, lines 24 – 27).

Regarding claim 10, Johnson teaches providing a categorizer system knowledge base (see column 2, lines 39 – 40);

providing a plurality of categorizers, each using knowledge in a categorizer system knowledge base and the list of item features to compute a degree of goodness for a plurality of categories, independent of other categorizers, each using a subset of item features to compute a degree of goodness for a plurality of categories,



independent of other categorizers, and each subset independent of subsets used by other categorizers (see column 2, lines 39 – 64); and

providing a mechanism to resolve the levels of goodness for a plurality of categories resulting from multiple categorizers into a combined level of goodness for a plurality of categories (see column 2, lines 1 – 10 and lines 65 – 67).

Claim 12 is essentially the same as claim 1 except that it sets forth the claimed invention as a method for categorization of a document rather than a method for categorization of an item and therefore rejected for the same reasons as applied hereinabove.

Regarding claim 13, Johnson teaches determining the plurality of levels of goodness includes using a process selected from a group consisting of Naive Bayes, quantitative decision-tree classifiers such as C4.5, Bayesian networks, rule-based multi-class classifiers that output a degree of goodness, conditional probability statements, simple heuristics, and a combination thereof (see column 1, lines 40 – 43 and column 18, lines 42 – 45).

Claim 14 is essentially the same as claim 3 except that it sets forth the claimed invention as a method for categorization of a document rather than a method for categorization of an item and therefore rejected for the same reasons as applied hereinabove.

Claim 15 is essentially the same as claim 4 except that it sets forth the claimed invention as a method for categorization of a document rather than a method for categorization of an item and therefore rejected for the same reasons as applied hereinabove.

Claim 16 is essentially the same as claim 5 except that it sets forth the claimed invention as a method for categorization of a document rather than a method for categorization of an item and therefore rejected for the same reasons as applied hereinabove.

Regarding claim 17, Johnson teaches returning a plurality of categories for the document among the plurality of categories returns a plurality of categories selected from a group consisting of categories up to a fixed number of the plurality of categories, categories having more than a fixed level of goodness, categories fulfilling a user specified preference, categories not from a categorizer, and categories which are a combination thereof (see 17, lines 61 – 67 and column 18, lines 15 – 21).

Claim 18 is essentially the same as claim 7 except that it sets forth the claimed invention as a method for categorization of a document rather than a method for categorization of an item and therefore rejected for the same reasons as applied hereinabove.

Claim 19 is essentially the same as claim 8 except that it sets forth the claimed invention as a method for categorization of a document rather than a method for categorization of an item and therefore rejected for the same reasons as applied hereinabove.

Claim 20 is essentially the same as claim 9 except that it sets forth the claimed invention as a method for categorization of a document rather than a method for categorization of an item and therefore rejected for the same reasons as applied hereinabove.

Claim 21 is essentially the same as claim 10 except that it sets forth the claimed invention as a method for categorization of a document rather than a method for categorization of an item and therefore rejected for the same reasons as applied hereinabove.

Claim 23 is essentially the same as claim 1 except that it sets forth the claimed invention as a system for categorization of an item rather than a method for categorization of an item and therefore rejected for the same reasons as applied hereinabove.

Claim 25 is essentially the same as claim 3 except that it sets forth the claimed invention as a system for categorization of an item rather than a method for

categorization of an item and therefore rejected for the same reasons as applied hereinabove.

Regarding claim 26, Johnson teaches a categorizer system trainer trained using a plurality of items having known categories and the plurality of labels to provide a categorizer system knowledge base (see column 3, lines 24 – 28 and column 6, lines 39 – 42).

Regarding claim 27, Johnson teaches a system for categorization of an item comprising:

a categorizer system knowledge base having a plurality of categories organized in a hierarchy of categories and having respective lists of category features (see column 4, lines 62 – 65 and column 6, lines 63 - 67);

a featurizer for featurizing the item to create a list of item features (see column 2, lines 39 - 40); and

a categorizer system connected to the categorization system knowledge base including:

a plurality of categorizers having one of the plurality of categories, the plurality of categorizers for using the list of item features with the lists of category features to respectively determine a plurality of levels of goodness, the plurality of categorizers categorizing the item in the categorizer system in the plurality of categories based on

the respective plurality of levels of goodness (see column 16, lines 1 – 16 and column 17, lines 59 – 67),

a mechanism for using one of the plurality of levels of goodness for invoking an additional categorizer of the plurality of categorizers as required (see column 6, lines 63 - 67); and

a return for returning the item categorized (see column 18, lines 15 - 21).

Regarding claim 29, Johnson teaches the categorizer system knowledge base determines the lists of category features (see column 6, lines 51 - 65).

Regarding claim 30, Johnson teaches the plurality of categorizers include a list mechanism for listing the plurality of categories and the respective levels of goodness (see column 6, lines 63 – 67); and

the plurality of categorizers categorizes from the list mechanism (see column 6, lines 51 - 65).

Regarding claim 31, Johnson teaches the return returns one category for the item among the plurality of categories selected from a group consisting of the one category with the best level of goodness for all the plurality of categories and with the best level of goodness for which determining is completed where all of the plurality of categories are not compared (see column 18, lines 15 - 21).

Regarding claim 32, Johnson teaches the return returns a plurality of categories for the item among the plurality of categories returns a plurality of categories selected from a group consisting of categories up to a fixed number of the plurality of categories, categories having more than a fixed level of goodness, categories fulfilling a user specified preference, categories not from a categorizer, and categories which are a combination thereof (see column 18, lines 15 - 21).

Regarding claim 33, Johnson teaches the return returns the category for a plurality of items to the categorizer system knowledge base for building a topic hierarchy (see column 18, lines 15 - 21).

Regarding claim 34, Johnson teaches a further listing mechanism for listing a plurality of labels for each of the plurality of categories (see column 1, lines 24 – 27);  
and

a categorizer system trainer trained using a plurality of items having known categories and the plurality of labels to provide the categorizer system knowledge base (see column 6, lines 39 – 42).

Regarding claim 35, Johnson teaches a system for categorization of an item comprising:

- a categorizer system knowledge base having a plurality of categories having respective lists of category features (see column 4, lines 62 – 65 and column 6, lines 63 – 67);

- a featurizer for featurizing the item to create a list of item features (see column 2, lines 39 – 40); and

- a categorizer system connected to the categorizer system knowledge base including:

  - a plurality of categorizers having the plurality of categories, the plurality of categorizers for determining the list of item features with the lists of category features to respectively determine a plurality of levels of goodness, the plurality of categorizers categorizing the item in the categorizer system in the plurality of categories based on the respective plurality of levels of goodness (see column 16, lines 1 – 16 and column 17, lines 59 – 67),

  - a mechanism for using one of the plurality of levels of goodness for invoking an additional categorizer of the plurality of categorizers as required a listing mechanism for listing the plurality of categories and the respective levels of goodness on a list (see column 6, lines 63 – 67), and

  - a return for returning a category for the item from the list (see column 18, lines 15 – 21).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 11, 22, 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson in view of U.S Patent 6,233,575 issued to Rakesh Agrawal et al (hereinafter "Agrawal").

Regarding claim 2, Johnson does not explicitly teach using the list of item features determines the plurality of levels of goodness using a process to quantify the plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness.

Agrawal teaches using the list of item features determines the plurality of levels of goodness using a process to quantify the plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness (see Fig.2; column 9, lines 58 – 67; column 11, lines 64 – 67 and column 12, lines 1 – 11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Johnson with the teaching of Agrawal wherein levels are the hierarchical structure of the items. Resolving the levels is



breaking the hierarchical levels of nodes and leaves. The motivation is that the hierarchical levels make searching of items or document easier.

Regarding to claim 11, Johnson teaches a method for categorization of an item comprising:

- providing a plurality of categories organized in a hierarchy of categories and having respective lists of category features using a categorizer system knowledge base for determining the lists of category features (see column 6, lines 63 – 67);

- providing a plurality of categorizers corresponding to one of the plurality of categories (see column 6, lines 1 – 3 and lines 39 – 42);

- featurizing the item to create a list of item features (see column 2, lines 39 – 40);

- using one of the plurality of levels of goodness for invoking an additional categorizer of the plurality of categorizers as required (see column 14, lines 24 – 65);

- categorizing the item in the categorizer system in the plurality of categories based on the respective plurality of levels of goodness (see column 17, lines 59 – 67);

- listing the plurality of categories and the respective levels of goodness on a list (see column 1, lines 24 – 27 and column 6, lines 63 – 67); and

- returning a category for the item from the list (see column 6, lines 51 – 65 and column 18, lines 15 – 21).

Johnson does not explicitly teach using the list of item features in a categorizer system including the plurality of categorizers with the lists of category features to respectively determine a plurality of levels of goodness, the plurality of levels of

goodness determined using a process to quantify the plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness.

Agrawal teaches using the list of item features in a categorizer system including the plurality of categorizers with the lists of category features to respectively determine a plurality of levels of goodness, the plurality of levels of goodness determined using a process to quantify the plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness (see column 11, lines 64 – 67 and column 12, lines 1 – 11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Johnson with the teaching of Agrawal wherein levels are the hierarchical structure of the items. Resolving the levels is breaking the hierarchical levels of nodes and leaves. The motivation is that the hierarchical levels make searching of items or document easier.

Claim 22 is essentially the same as claim 11 except that it sets forth the claimed invention as a method for categorization of a document rather than a method for categorization of an item and therefore rejected for the same reasons as applied hereinabove.

Claim 24 is essentially the same as claim 2 except that it sets forth the claimed invention as a system rather than a method and therefore rejected for the same reasons as applied hereinabove.

Regarding claim 28, Johnson does not explicitly teach the plurality of categorizers determine the plurality of levels of goodness using a process to quantify the plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness.

Agrawal teaches the plurality of categorizers determine the plurality of levels of goodness using a process to quantify the plurality of levels of goodness, to prioritize the plurality of levels of goodness, and to resolve two levels of goodness into a third level of goodness (see column 11, lines 64 – 67 and column 12, lines 1 – 11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine teaching of Johnson with the teaching of Agrawal wherein levels are the hierarchical structure of the items. Resolving the levels is breaking the hierarchical levels of nodes and leaves. The motivation is that the hierarchical levels make searching of items or document easier.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred I. Ehichioya whose telephone number is 703-305-8039. The examiner can normally be reached on M - F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 703-305-9790. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-303-3900.

Fred I. Ehichioya  
Examiner  
January 5, 2004

  
SHAHID ALAM  
PRIMARY EXAMINER